



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/758,939	01/10/2001	Jennifer Lu	5075-0028	9598

23980 7590 03/23/2006

REED INTELLECTUAL PROPERTY LAW GROUP  
1400 PAGE MILL ROAD  
PALO ALTO, CA 94304-1124

EXAMINER
----------

MAGEE, CHRISTOPHER R

ART UNIT	PAPER NUMBER
----------	--------------

2627

DATE MAILED: 03/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.



## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 01/12/2006 has been entered.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

- Claims 1-6, 10-16, 22 and 40 are rejected under 35 U.S.C. 102(e) as being anticipated by Zheng et al. (hereinafter Zheng) (US 6,870,707 B1).

Regarding claims 1-4, 14-16, 22 and 40, Zheng discloses a method for producing a transducer slider having at least one tapered edge or rounded corner [col. 4, lines 54-55], comprising:

- (a) coating a substrate with a radiation-sensitive layer [col. 9, lines 17-18];

Art Unit: 2653

(b) imagewise exposing the radiation-sensitive layer to radiation according to an intensity pattern having a gradient conforming to said at least one tapered edge, said intensity pattern enabling specific levels of removal of portions of the radiation sensitive layer corresponding to the specific intensity pattern used [col. 9. lines 19-29];

(c) developing the image into the radiation-sensitive layer [col. 9, lines 30-37 ]; and

(d) transferring the image into the substrate to form a transducer slider having a surface profile comprising said at least one tapered edge or a rounded corner as provided by the specific intensity pattern [Figs. 3A-E and 4A-C ].

Regarding claim 5 and 6, Zheng teaches the radiation-sensitive layer is a positive resist [col. 6, lines 6-11].

Regarding claim 10, Zheng discloses the radiation has an ultraviolet wavelength [col. 6, lines 1-5].

Regarding claims 11-13, Zheng discloses the intensity pattern being provided using a grayscale mask [col. 6, lines 32-42].

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

- Claims 7, 8, 17-19 and 23-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zheng et al. (hereinafter Zheng) (US 6,870,707 B1) as applied to claim 1 above, and further in view of Hira et al. (hereinafter Hira) (US 5,910,864).

Regarding claims 7 and 8, Zheng discloses all the features, *supra*, but does not teach or suggest the radiation sensitive layer (i.e., grayscale mask) has a thickness of about 1 to 20  $\mu\text{m}$ . Hira teaches the radiation sensitive layer has a thickness of about 1 to 20  $\mu\text{m}$  [col. 12, lines 36-38 ; col. 13, lines 11-20].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to manufacture the radiation sensitive layer thickness of Zheng with the thickness as taught by Hira.

The rationale is as follows: One of ordinary skill in the art at the time of the invention would have been motivated to manufacture the radiation sensitive layer thickness of Zheng with the thickness as taught by Hira in order to eliminate a residual redeposition layer [Hira; col. 13, lines 21-28].

Regarding claims 17-19, Zheng discloses all the features, *supra*, but does not teach or suggest the etchant comprises an Argon based gas [col. 7, lines 27-30]. Hira discloses the etchant comprises an Argon based gas [col. 27, lines 45-49].

Art Unit: 2653

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the etchant of Zheng with an Argon based etchant as taught by Hira.

The rationale is as follows: One of ordinary skill in the art at the time of the invention would have been motivated to provide the etchant of Zheng with an Argon based etchant as taught by Hira in order to process a material of a small etching rate (e.g., a ceramic or a high dielectric) in a short time, accurately, safely and easily [Hira; col. 30, lines 33-38].

Regarding claims 23-27, Zheng discloses all the features, *supra*, but does not teach or suggest the substrate comprises a ceramic material. Hira teaches the substrate comprises a ceramic material [col. 23, lines 33-39].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the substrate of Zheng with a ceramic material as taught by Hira.

The rationale is as follows: One of ordinary skill in the art at the time of the invention would have been motivated to provide the substrate of Zheng with a ceramic material as taught by Hira in order to give a small dimensional shift, making it possible to form magnetic head rails of high dimensional accuracy [Hira; col. 9, lines 51-55].

Art Unit: 2653

- Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zheng et al. (hereinafter Zheng) (US 6,870,707 B1) as applied to claim 1 above and further in view of Dickinson, Jr. (hereinafter Dickinson) (US 6,350,506).

Regarding claim 9, Zheng disclose all the described features, *supra*, but do not teach or suggest the radiation is photonic.

Dickinson teaches exposing a surface to laser radiation that is monochromatic radiation, which results from photon stimulated emission, i.e., photonic radiation [col. 1, lines 40-47; col. 4, lines 55-63].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the radiation of Zheng with photonic radiation via a laser as taught by Dickinson.

The rationale is as follows: One of ordinary skill in the art at the time of the invention would have been motivated to substitute the radiation of Zheng with photonic radiation via a laser as taught by Dickinson in order to maintain close dimensional control [Dickinson; col. 2, lines 25-28].

- Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zheng et al. (hereinafter Zheng) (US 6,870,707 B1) as applied to claim 1 above and further in view of Yoshida et al. (Yoshida) (US 5,331,495).

Regarding claims 20 and 21, Zheng disclose all the described features, *supra*, but do not teach or suggest the enchant comprises a liquid.

Art Unit: 2653

Yoshida teaches a resulting mask pattern is subjected to wet treatment by a liquid etchant for patterning [col. 8, lines 64-67].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to expose the substrate of Zheng with a liquid etchant as taught by Yoshida.

The rationale is as follows: One of ordinary skill in the art at the time of the invention would have been motivated to expose the substrate of Zheng with a liquid etchant as taught by Yoshida in order to achieve a stable lift off and with the least changes in the substrate profile [Yoshida; col. 5, line 66 to col. 6, line 2].

#### ***Response to Arguments***

4. Applicant's arguments with respect to claims 1-27 and 40 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher R. Magee whose telephone number is (571) 272-7592. The examiner can normally be reached on M-F, 8: 00 am-4: 30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Art Unit: 2653

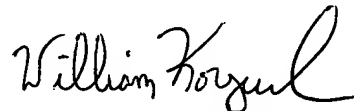
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Christopher R. Magee  
Patent Examiner  
Art Unit 2627

March 17, 2006

crm



WILLIAM KORZUCH  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600